REMARKS/ARGUMENTS

The Advisory Action dated August 12, 2010, has been carefully reviewed and the following remarks are responsive thereto. Claims 6, 12 and 16 have been amended. No new matter has been added.

Claims 1, 3-6, 8-12, 14-16, 18-21 remain pending upon entry of the present amendment. Reconsideration and allowance are respectfully requested.

Claim Rejections under 35 U.S.C.§102

The Advisory Action maintained the rejections of claims 1, 3, 5, 16, 18 and 20-21 under 35 U.S.C. 102(e) as being anticipated by Li (US Publication No. 2006/0182119 A1, hereafter referenced as "Li"). The applicants respectfully disagree for the following reasons.

To anticipate a claim, a single reference must disclose each feature of that claim.

As per Claim 1:

Claim 1 of the present invention defines a method for realizing QoS guarantee in a MPLS network having a number of edge routers, the method comprises: creating an individual QoS resource list in each edge router to record a resource state corresponding to a path; each edge router assigning resources to a user terminal which makes a request based on said QoS resource list and updating the QoS resource list; and wherein the resource states of the paths from the edge router to all the other edge routers in the same domain are recorded in said QoS resource list.

The applicants respectfully submit that the claimed invention of present independent claim 1 differs substantially from Li, and at least the following feature provided by claim 1 of the present invention is not found in Li:

1) "**creating an individual QoS resource list in each edge router** to record a resource state corresponding to a path"

With reference to Li, Li discloses, in paragraphs [0040]-[0042], "*an application source terminal transmitting a resource request message to the ingress edge router of a QOS domain...adding the edge router ID of each passed QOS domain in the* ***edge router list of the resource request message...storing said edge router list in the QOS edge router connected with the destination terminal of the data flows***", and Li discloses, in paragraphs [0043] and [0046],

"*the destination terminal returning a resource allocation message towards the source terminal that sends the resource request message…the* ***last QOS edge router****, which receives the resource allocation message...****attaching the edge router list stored in the QOS edge router to said resource allocation message****, and continuing to forward said resource allocation message*". Thus the edge router list in Li is carried by the resource request message, which is initiated by the source terminal and passes through the edge routers along the data flow path, and stored in the edge router connected with the destination terminal, and then the edge router list is attached by the last edge router to the resource allocation message, which is initiated by the destination terminal and forwarded to other edge routers along the data flow path. It can be clearly seen that the edge router list in Li is **only stored in the edge router connected with the destination terminal**, and **other edge routers** along the data flow path can only modify the list by, for example, adding their router IDs into the list, when the resource request message carrying the list is received, but **never store the list**.

This is also reflected in paragraphs [0171]-[0177] of Li, "*adding R1 ID in the* ***QER list of the resource request message*** *and forwarding the resource request message...when the resource request message passes through the edge router R2, R2...adding ID of itself in the QER list of the request message...****at the edge router R4, which is directly connected with the destination terminal APP2...storing the QER list****, and forwarding the request message with the removed QER list to the destination terminal APP2...the destination terminal APP2...returning an allocation message to the source terminal APP1...****at the edge router R4...adding the QER list in and forwarding the resource allocation message***", and is also shown by figure 5 of Li.

In contrast, the method of claim 1 of the present application includes "**creating individual QoS resource list in each edge router** to record a resource state corresponding to a path", which is apparently essentially different from the way of carrying the edge router list in the resource request message and resource allocation message in Li. Therefore, the applicants respectfully submit that the feature "creating individual QoS resource list in each edge router to record a resource state corresponding to a path" is neither disclosed nor taught by Li.

2) "**the resource states of the paths from the edge router to all the other edge routers in the same domain are recorded in said QoS resource list**"

From the above analysis of Li, it can be seen that the edge router list in Li records a list of edge routers on the data flow path, which is also the path on which the resource request message and resource allocation message are transmitted. In other words, the edge router list in Li can only record the edge routers on one path, and as far as a particular domain on the path is concerned, the edge router list can only record the edge routers on one path in the domain that belongs to the entire path of the data flow, that is, **the edge router list can only involve no more than one path in a domain**.

Besides, the mechanism for setting up a data flow path in Li is based on the transmission of the resource request message and resource allocation message, and the edge router list is formed by adding the router IDs of the edge routers on the transmission path of these messages. Thus the edge router list in Li represents the data flow path. If there are more than two edge routers in a domain, and edge routers on more than one path in the domain are included in the edge router list, that is, more than one path in the domain are included in the list, setup of the data flow path will apparently fail, because the path in the domain is uncertain.

Therefore, the feature "the resource states of the paths from the edge router to all the other edge routers in the same domain are recorded in said QoS resource list" **cannot** be applied in Li, if there are more than two edge routers in any domain, which is nearly impossible in an actual network. Although figure 4 of Li only depicts two edge routers in each domain, and both of the edge routers in the domain are included in the edge router list, the scenario depicted in Figure 4 of Li is for illustrating the transmission of the messages and the data flow path in Li. As analyzed above, Li does not disclose and can not teach the feature "the resource states of the paths from the edge router to all the other edge routers in the same domain are recorded in said QoS resource list" defined in claim 1 of the present application.

Based on the above analysis, claim 1 of the present application is neither disclosed nor taught by Li. So, Li cannot provide a basis for a rejection under 35 U.S.C. 102(e).

In fact, the QoS guarantee mechanism in the present invention and that in Li are completely different. According to the technical scheme of claim 1 of the present application, an individual QoS resource list is created in each edge router, and the resource states of the paths from the edge router to all the other edge routers in the same domain are recorded in the Qos resource list, and thereby resources can be assigned to a user terminal based on the QoS resource list in response to a

request from the user terminal. It can be seen that resource allocation for setting up a Qos guaranteed path is quite easy with the method of claim 1 as the resource states of each domain are pre-stored in each edge router, and accordingly, setup of a QoS guaranteed path only requires further sending a confirmation message after the resource allocation.

In contrast, setup of a data flow path is much more complex in Li as the edge router list is carried in the resource request message and resource allocation message. Setup of a data flow path in Li requires transmission of the resource request message from the source terminal to the destination terminal, and transmission of the resource allocation message in a reverse direction, checking whether the resource request can be accepted by each policy server in each domain, and checking whether there are enough resources on each hop during both the transmission process of the resource request message and the transmission process of the resource allocation message (please see paragraphs [0171]-[0181] of Li).

Hence claim 1 of the present application is able to solve a technical problem of how to efficiently and effectively allocate resources for a QoS guaranteed path by creation of individual QoS resource list in each edge router.

The above distinguishing technical features of claim 1 from Li is neither disclosed nor taught by other prior art documents mentioned in the Office Action:

Rabie discloses a method of bandwidth management in a multiservice connection –oriented network which uses one or more overbooking factors and one or more overbooking models. The method allows an edge node which has received a connection request to accurately determine the bandwidth available on a given link in the network by ensuring that different overbooking models and different overbooking factors are normalized at the edge node.

Kurose discloses that in a data transfer apparatus, a transferring destination information reader reads information of a transferring destination terminal associated with a primary destination terminal based on a communication quality request to the primary destination terminal received from a source terminal. A resource reservation instructor gives instructions for a communication resource reservation for purposes of a communication of the quality to the transferring destination terminal. A resource reserver determines whether or not a communication resource of the transferring destination terminal has been reserved based on the instructions by the

resource reservation instructor, and responds with a result of the determination thereof to the resource reservation instructor.

Matsubara discloses that for on-demand Quality of Service (QoS) transmission of packets, edge nodes update a TERMINAL-PORT TABLE as terminals log-on and then pass their node ID to each terminal that logged on. The nodes establish Quality of Service (QoS) assured pre-set paths through the WAN with conventional IP routing and accordingly update their NODE-PATH TABLE to provide links between the pre-set paths. Although several tables are involved in Matsubara, it fails to disclose any table created in each edge router for recording the resource states of the paths from the edge router to all the other edge routers in the same domain.

Therefore, documents Rabie, Kurose and Matsubara are also at least silent on the above distinguishing technical features of claim 1.

The distinguishing technical features of claim 1 are not common general knowledge in the art.

In summary, the cited art, as a whole, does not suggest or teach the above distinguishing technical features. The applicants respectfully submit that the cited art does not provide any relative teachings for one of ordinary skill in the art to acquire the technical scheme defined in claim 1 over Li with a combination of the above distinguishing technical features and further solves the technical problem to be solved in the present invention. The applicants respectfully submit that it is **non-obvious** for one of ordinary skill in the art **at the time of the invention** to **modify Li by the existing technology** in the cited art, to solve the problem to be solved in the present invention. Accordingly, claim 1 also conforms to the provisions of 35 U.S.C. 103.

As such, the applicants respectfully submit that claim 1 is in condition for allowance.

As per Claims 3 and 5:

Claims 3 and 5 are dependent on Claim 1, and are thus allowable for at least the same reasons as Claim 1.

As per Claim 16:

Claim 16 of the present invention is an apparatus implementation of the method claimed in claim 1 and comprises all the elements of claim 1.

As stated above, independent claim 1 complies with the requirements of novelty and non-obviousness. For the similar reasons discussed with respect to claim 1 above, Li fails to disclose or suggest each and every element of claim 16. Therefore, claim 16 should be allowed.

As per Claim 18:

As stated above, independent claim 16 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 18, which depends on claim 16, is also in conformity with the requirements of novelty and non-obviousness.

As per Claim 20:

As stated above, independent claim 16 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 20, which depends on claim 16, is also in conformity with the requirements of novelty and non-obviousness.

As per Claim 21:

Claim 21 of the present invention defines an MPLS network for realizing QoS guarantee, the MPLS network comprises the edge router defined in claim 16-20. So, claim 21 comprises all the elements of claims 16-20.

As stated above, claims 16-20 comply with the requirements of novelty and non-obviousness. For the similar reasons discussed with respect to claim 16-20 above, Li fails to disclose or suggest each and every element of claim 21. Therefore, claim 21 should be allowed.

Claim Rejections under 35 U.S.C.§103

The Advisory Action maintained the rejections of claims 6, 10 and 11 under 35 U.S.C. 103(a) as being unpatentable over Li in view of Rabie (US Publication No. 2003/0076829 A1, hereafter referenced as "Rabie"). The applicants respectfully disagree for the following reasons.

As per Claim 6:

Claim 6 of the present application defines a method for establishing a QoS data path in a MPLS network, comprising: a user terminal sending a QoS resource request to an ingress edge router; said edge router determining information of a path to an egress edge router of the QoS resource request; said ingress edge router determining whether the resource request is accessed or rejected based on comparing available resources of the requested resources corresponding to the path recorded in a QoS resource list with bandwidth resources requested in said resource request; and when the resource request is determined to be accessed, updating said QoS resource list; and wherein individual QoS resource list is created in each edge router, and the resource states of the

paths from the edge router to all the other edge routers in the same domain are recorded in said QoS resource list.

Claim 6 of the present application is a method for establishing a QoS data path in a MPLS network and comprises all the elements of claim 1.

As stated above, independent claim 1 complies with the requirements of novelty and non-obviousness. For the similar reasons discussed with respect to claim 1 above, claim 6 should be allowed.

As per claim 10:

Claim 10 of the present application is a dependent claim of independent claim 6, and further defines the following additional technical feature: subtracting the bandwidth resources requested in said QoS resource request from the available resources of the corresponding requested resources in said QoS resource list.

This additional technical feature of claim 10 of the present invention is neither disclosed in Li and Rabie, nor disclosed by the prior art.

In addition, as stated above, independent claim 6 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 10, which depends on claim 6, is also allowable.

As per claim 11:

Claim 11 of the present application is a dependent claim of independent claim 6, and further defines the following additional technical feature: said QoS resource list at least comprises information of the egress edge router, service class, LSP resources and available resources.

This additional technical feature of claim 11 of the present application is neither disclosed in Li and Rabie, nor disclosed by the prior art.

In addition, as stated above, independent claim 6 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 11, which depends on claim 6, is also allowable.

The Advisory Action maintained the rejections of claims 12, 14 and15 under 35 U.S.C. 103(a) as being unpatentable over Kurose (US Publication No. 2003/0084089 A1, hereafter

referenced as "Kurose") in view of Li. The applicants respectfully disagree for the following reasons.

As per claim 12:

Claim 12 of the present application defines a method for terminating QoS data transmission in a MPLS network, comprising: an ingress edge router receiving a resource releasing request from a user terminal; said ingress edge router releasing the resources occupied by said user terminal; and said ingress edge router modifying its QoS resource list which records a resource state corresponding to a path; and wherein individual QoS resource list is created in each edge router, and the resource states of the paths from the edge router to all the other edge routers in the same domain are recorded in said QoS resource list.

Claim12 of the present application is a method for terminating QoS data transmission in a MPLS network and comprises all the elements of claim 1.

As stated above, independent claim 1 complies with the requirements of novelty and non-obviousness. For the similar reasons discussed with respect to claim 1 above, claim 12 should be allowed.

As per claim 14:

As stated above, independent claim 12 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 14, which depends on claim 12, is also allowable.

As per claim 15:

As stated above, independent claim 12 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 15, which depends on claim 12, is also allowable.

The Advisory Action maintained the rejections of claims 4 and 19 under 35 U.S.C. 103(a) as being unpatentable over Li in view of Matsubara (US Patent No. 7,215,640 B2, hereafter referenced as "Matsubara"). The applicants respectfully disagree for the following reasons.

As per claim 4:

Claim 4 is dependent on claim 1, and is thus allowable for at least the same reasons as claim 1.

As per claim 19:

As stated above, independent claim 16 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 19, which depends on claim 16, is also allowable.

The Advisory Action maintained the rejections of claims 8 and 9 under 35 U.S.C. 103(a) as being unpatentable over Li in view of Rabie and Matsubara. The applicants respectfully disagree for the following reasons.

As per claim 8:

Claim 8 is a dependent claim of independent claim 6, and is thus allowable for at least the same reasons as claim 6.

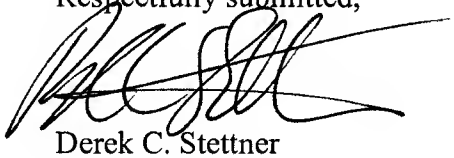
As per claim 9:

As stated above, claim 8 complies with the requirements of novelty and non-obviousness. Thus, the applicants respectfully submit that dependent claim 9, which depends on claim 8, is also allowable.

Conclusion

In view of the above, entry of the present Amendment and allowance of the pending claims are respectfully requested. If the Office has any questions regarding this Amendment, the Office is requested to contact the undersigned.

Respectfully submitted,



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